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TABLE-MOUNTED BOWLING SCORING UNIT

CROSS REFERENCE TO RELATED APPLICATION

This application is a continuation of U.S. Patent Application Serial No. 09/385,815, entitled "TABLE-MOUNTED BOWLING SCORING UNIT," by Applicants Troy A. Recknagel, filed August 30, 1999, which is a continuation-in-part of U.S. Patent Application Serial No. 09/330,955, entitled "TABLE-MOUNTED BOWLING SCORING UNIT," by 5 Applicants Troy A. Recknagel et al., filed June 11, 1999, the disclosures of which are incorporated herein by reference.

BACKGROUND OF THE INVENTION

The present invention relates to a bowling scoring unit and a system for integrating the scoring unit to a table.

Modern bowling lane establishments include scoring systems which provide a variety of information and interactive communications between each of the players, a central station and facilities within the bowling establishment, such as restaurants, lounges and the like. There are several types of bowling scoring units in use including pedestal-mounted scoring units which operate in connection with overhead monitors for the entry of names, scores, and providing an interface between the player and the central station or other facilities within the bowling establishment. Such pedestal-mounted units may include a variety of features and are typically located immediately adjacent the ball return for each pair of lanes. Other scoring systems employ a free-standing monitor and control which eliminates the need for overhead monitors. 20 Such systems display scores and other information and, like the pedestal-mounted scoring units, are mounted in a housing which includes a keyboard, monitor, intercom system and the like. U.S. Patent No. 5,719,548 is representative of such a system which provides individual game information and may or may not be used with additional overhead displays.

Although these systems provide the owner of the bowling establishment with a variety 25 of scoring and monitoring devices for the convenience of the bowlers and a variety of different priced systems, they occupy valuable space at the end of each lane which typically includes a seating area with a table for the convenience of the players while relaxing, eating and

socializing. Typically, the table and seating areas behind the bowling lanes are compact, providing tables which will accommodate up to four players in the immediate vicinity of the lanes, although additional seating and table spaces are frequently available behind this area. Thus, the tables in the immediate vicinity of the bowling lanes and which are employed by the 5 bowlers are relatively small to accommodate only their immediate needs. The free-standing and pedestal-mounted scoring units and displays, however, must be navigated around when moving from the seating area to the bowling lanes and, thus, not only occupy valuable floor space but also provide somewhat of an obstacle to the players.

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SUMMARY OF THE INVENTION

The scoring system of the present invention provides a new opportunity for owners of the bowling establishment to provide flexible scoring units which, in one embodiment, do not occupy valuable table or floor space adjacent bowling lanes but rather provide a scoring unit and/or monitor/scoring unit with a mounting system allowing the unit to be mounted adjacent one end of the table and coupled to the table undersurface. Such a system, therefore, occupies no table or floor space, thereby freeing the area for an improved traffic pattern and does not interfere with the use of the table for other purposes.

Systems embodying one embodiment of the present invention comprise a bowling scoring unit having a housing with a generally L-shaped mounting arm with the end of the arm remote from the housing for extending under a table top and including a mounting flange for securing the end of the arm to the undersurface of the table. Preferably, the housing is mounted to the arm to allow its rotation for viewing at different angles and to provide convenient access by players sitting adjacent the edge of the table from which the scoring unit extends. In another embodiment of the invention, an adapter bracket is provided for coupling 25 to the pedestal mount of a table itself with an extension coupled to receive the flange of the mounting arm.

In yet another embodiment of the invention, the scoring unit is integrated into the table itself either by mounting the scoring unit within a recess in the table or to an extension of the table end or through a table on a pedestal. In these embodiments, the scoring unit is also 30 conveniently located for use by the players seated at the table.

The scoring unit may include alpha-numerical keypads and an intercom system and/or may be of the type which includes a monitor with a touch screen for calling up different menus. Such units allow the player to interact with the central station and/or other facilities of the establishment.

5 These and other features, objects and advantages of the present invention will become apparent upon reading the following description thereof together with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

10 Fig. 1 is an exploded fragmentary perspective view showing a pair of different types of bowling scoring units which can employ the mounting system of the present invention;

Fig. 2 is an enlarged perspective view of one of the scoring units shown in Fig. 1;

Fig. 3 is an enlarged view of the control panel section of the scoring unit shown in Fig. 2;

Fig. 4 is an enlarged front elevational view of the other scoring unit shown in Fig. 1;

Fig. 5 is a right-side elevational view of a housing which can be employed for either of the scoring units shown in Fig. 1;

Fig. 6 is a top plan view of the mounting arm and an adapter bracket seen also in Fig. 1;

Fig. 7 is a front elevational view of the structure shown in Fig. 6;

Fig. 8 is a perspective view of an alternative embodiment of the invention, showing a scoring unit within a table;

Fig. 9 is a perspective view of yet another embodiment of the invention, showing a scoring unit integrated within a table;

25 Fig. 10 is a perspective view of yet another embodiment of the invention, showing a scoring unit and mounting pedestal extending through a table; and

Fig. 11 is a perspective view of the scoring unit shown in Fig. 10, with the monitor pivoted to be viewed from a different angle.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring initially to Fig. 1, there is shown a first bowling scoring unit 10 and an alternative bowling scoring unit 15 with scoring unit 15 including a monitor and touch screen. Both bowling scoring units provide alpha-numeric keyboards, intercoms and control switches 5 or keys which allow the player to select a variety of features such as different game options as well as communicate with both a central station or other facilities within the establishment, enter names, enter and view scores and the like.

Common to both of scoring units 10 and 15 is a housing having a front wall 12 and a rear wall 14, each integrally molded of a suitable polymeric material and snap-fitted or 10 otherwise fastened together for housing the electrical components. The rear housing 14 includes, as best seen in Figs. 1 and 5, a tangentially extending extension 16 having an open cylindrical socket 18 at the bottom thereof for receiving one end 21 of a generally L-shaped mounting arm 20. Arm 20 has a horizontally extending section 22 with a horizontally extending mounting plate or flange 24 attached to the upper side thereof for attachment to the under surface 42 of a table 40. Table 40 can be a pedestal-type table which is mounted to the floor by a pedestal 44, as described in greater detail below, and can be generally of the shape of the tables shown in U.S. Patent No. 5,618,238.

The section 26 of arm 20 proximate the scoring unit 10 or 15 extends vertically from the horizontally extending section 22 and is integrally joined thereto by a 90° elbow 25 with end 21 of arm 20 being positioned above the upper surface 41 of table 40 a distance such that the lower edge 11 of either of the scoring units 10 or 15 are above the top surface 41 of table 40 a distance for conveniently positioning the scoring unit for access by someone with their forearms supported on the table top. Arm section 26 includes an arcuate slot 27 into which a keeper pin (not shown) extends from the tangentially extending collar 16 of either of the scoring units 10 or 15 to permit limited arcuate motion of either of the scoring units around the longitudinal axis of the vertically extending section 26 of arm 20 in a direction indicated by 25 arrow A in Fig. 1 such that the monitor can be rotated from side to side for viewing by players sitting on either side of the table.

Mounting plate 24 includes a plurality of apertures 31 therein (Fig. 6) for securing arm 30 20 in a cantilevered fashion with the distal end 28 remote from end 21 located under the table and positioned such that the vertically extending section 26 of arm 20 clears the edge 43 of

table 40. Thus, arm 20 mounts to table 40 in a cantilevered fashion to support a scoring unit 10 or 15 adjacent an edge of the table and above the top surface of the table such that the top surface remains free for other use, as does the floor space below and around the table.

Arm 20 is a hollow cylindrical metal tube with a suitable exterior finish. The tube-like structure allows an electrical conductor 29 to extend therethrough and be coupled to the scoring unit 10 or 15 and extended to couple to the central station of the establishment for communicating between the central station, the pin setting system and other facilities within the establishment. Before describing a preferred embodiment of the invention which incorporates an intermediate adaptive mounting bracket 50, as shown in Figs. 1, 6 and 7, a more detailed description of the scoring units 10 and 15 briefly follow.

Scoring unit 10 is seen in Figs. 2 and 3 and comprises a generally rectangular housing with the front wall 12 including a speaker 30 mounted to the lower edge thereof and a microphone 32 mounted to the upper edge. Above the speaker there is mounted a numerical entry keypad 34 in the configuration of the bowling pin set up and above the numerical entry keypad 34 is an alpha keypad 36 in a conventional arrangement for the entry of names or other information by the players. A strike/spare key 35 and other conventional keys are positioned below the alpha keyboard 36. Above the keyboard are a plurality of entry keys 38 for the entry of select items such as game type, communications with the central control, communications with an eating facility within the establishment and the like. The layout of the control keys for the scoring unit 10 is shown in greater detail in Fig. 3.

The alternate scoring unit 15 is shown in Fig. 4 and also includes a speaker 30 on the lower end of front wall 12 and a microphone 32 along the upper edge of the wall. The central area of scorer 15 comprises a touch screen monitor 37 which, as seen in Fig. 4, includes a bowling score sheet when displaying the bowling scores and, upon activation of the touch screen, different menus are displayed for entry of bowlers names, communications with the central control, ordering of food and drink, and the like in a conventional manner, such as the system disclosed in U.S. Patent No. 5,719,548. With scoring unit 10, an overhead monitor is mounted within the establishment remote from table 40, while scoring unit 15 is designed to be used with or without such monitors. With both systems, a bowling scoring unit is provided with a coupling, such as arm 20, which positions the scoring unit adjacent an edge 43 of the table 40 above the top surface 41 of the table in a convenient location for use by the players

without occupying either the top surface of the table or floor space. In a preferred embodiment of the invention, the mounting arm 20 is integrated to the table-mounting pedestal 44 by an adaptive bracket 50 now described.

Bracket 50 includes a generally horizontally extending mounting plate 52 having a central opening 54 therein and lips 56 extending downwardly from three edges thereof which overlie a horizontally extending mounting flange 45 secured to pedestal 44 for conventionally mounting the table 40 to the floor of the facility. Thus, the shape of mounting plate 52 associated with adaptive bracket 50 is such that it overlies and extends between the pedestal mounting flange 45 and the lower surface 42 of table 40 with mounting apertures 55 aligned with apertures 46 of flange 45 such that fastening screws 47 can extend through flange 45 associated with the table pedestal 44 and mounting plate 52 associated with adaptive bracket 50. Integrally extending and formed with plate 52 is a semi-cylindrical end collar 58 defining an open upper trough 59 (Fig. 6) for telescopically receiving cylindrical section 22 of mounting arm 20. The mounting plate 24 of arm 20 overlies horizontally extending flanges 60, 62 (Fig. 6) integrally formed with and extending from the opposite sides of collar 58. The horizontally extending mounting plate 24 of arm 20 may include downwardly extending lips 23 (Fig. 7) to stabilize the interconnection of arm 20 onto collar 58 and flanges 60, 62. Flanges 60, 62 include apertures 61 which align with apertures 31 in plate 24 and permit the arm 20 to be mounted at various locations along the longitudinal length of extension 58 or overlie the extension depending upon the size of the table. Conductor 29 extends through the central opening 54 of mounting plate 52 and downwardly through the open cylindrical tubular pedestal 44 to the central control station for inter-coupling either scoring unit 10 or 15 to the central control. By providing the adaptive bracket 50, arm 20 can be adjustably mounted and provide a more secure inter-coupling of the arm to the lower surface of the table. Although this feature is a preferred structure for pedestal-type tables, arm 20 as described above can be used independently of such an adaptive bracket.

Thus, as seen with the first embodiment of the present invention, a scoring unit is provided which occupies no table space, no floor space, and provides a scoring unit which can have flexible features depending upon the establishment design to provide players with a conveniently located, readily accessible scoring unit for communications with the central control and other facilities within the establishment.

In the embodiment shown in Fig. 8, a table 70 is provided and mounted to the floor of the establishment by a central elongated pedestal 72 to which there are attached four cantilevered pivot seats 74 on opposite sides of the elongated table which also provides space for a free standing chair or stool 76 at one end. Integrally mounted to table 70 at an end opposite chair 76 is a scoring unit 80 in a housing 85 which can be mounted within a recess 73 near end 71 of table 70. The scoring unit 80 may be integrally mounted to the table top 75 with a conventional swivel mount mechanism 77 (shown schematically in Fig. 8) which includes a plate secured to the bottom of the recess 73 and a plate secured to the lower surface of the scoring unit 80 with bearings between the plates allowing the scoring unit to swivel from side-to-side. With such construction, the lower surface 81 of the scoring unit extends above the top surface 75 of table 70 with the swivel mount being extended within the recess 73 shaped to receive the swivel mount. In other embodiments, the scoring unit 80 is fixedly mounted within the recess 73 shaped to conform to the lower surface (i.e., base) 81 of the scoring unit.

Scoring unit 80 can take on any desired form and the scoring unit 80 shown in Fig. 8 is a CRT-type display with data entry keypads 83 on opposite sides, although the flat screen LCD displays, such as scoring units 10 and 15 in the first embodiments, can also be mounted to the end 71 of table 70 utilizing a relatively compact smaller recess 73 for either the base of the scoring unit or for a swivel mount 77 for the scoring unit. Such displays may integrally include a touch screen keypad in place of keypads 83.

Fig. 9 illustrates yet a further embodiment of the invention in which a table 90 is shown, again having a pedestal base 92 to which cantilevered pivot chairs 94 are mounted. An additional chair 96 can be positioned at a rounded end 98 of the table, which has an opposite end 91 extended at 93, which extension is shaped for receiving and supporting the housing 105 of a scoring unit 100. The extension 93 of table 90 provides an asymmetrical table top with a larger surface area 95 for the table for use by players in the seats 94, and allows the use of a CRT-type scoring unit 100 to be mounted in the extension 93. Table 90 may include a recess 97 for receiving the scoring unit 100 either in fixed relationship for integrating the scoring unit to table 90 or for receiving a conventional swivel mount base 77 for the scoring unit such that the scoring unit can be rotated from side-to-side on the table for use of the scoring unit by players on opposite sides of the table. In either of the embodiments of Figs. 8 and 9, the

scoring unit is integrally mounted to the table so as to not be removable. The scoring unit can be securely fixed either within a recess in the table top, through a swivel mount to the table top, or by other structure which integrates the table and scoring unit such that they appear as a single structure.

5 Figs. 10 and 11 illustrate still a further embodiment of the invention in which a table 110 is provided and includes a scoring unit 120 in a housing 121 which includes a CRT-type monitor 130 which extends through a circular aperture 112 through the top surface 111 of table 110 and is supported on a generally cylindrical base 124 supporting the scoring unit 120 including the associated monitor. Scoring unit 120 includes a keyboard 122 in this 10 embodiment, although it can use a touch-screen type scoring unit as shown in the earlier embodiments. Base 123 of scoring unit 120 is a swivel mount to allow the scoring unit to be rotated around a vertical axis, as seen in Fig. 10. Table 110 is supported on the floor partially by the support column 124 for scoring unit 120 which includes an outer, top annular surface 125 coupled to the lower surface 115 of the table and a center core to which the scoring unit 120 is swivel-mounted by base 123 to allow the scoring unit 120 to be swiveled from side-to-side or reversed, as illustrated in Fig. 11. Table 110 has further support through arms 116 extending to a pedestal base 117 for chairs 104 mounted on opposite sides of the table 110.

20 As in all the embodiments, the electrical communications and power for the scoring units shown can extend either through the pedestal mounts for the tables shown or, in the embodiment shown in Figs. 10 and 11, through the cylindrical base 124 to provide operating power and communications between the scoring unit and the central control for the establishment. The scoring units 80, 100, and 120 may be CRT-type displays, flat screen displays and may include separate keyboards or key-touch screens as desired. They are, 25 however, integrated into the table surface so as to form an integral unit either by providing a mounting recess for the scoring unit, a swivel-mount base attached to the table and scoring unit, or a recess through which a mounting pedestal for the table and scoring unit is provided.

It will become apparent to those skilled in the art that various modifications to the preferred embodiments of the invention as described herein can be made without departing from the spirit or scope of the invention as defined by the appended claims.